

IN THE CLAIMS:

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11. (Amended) A transgenic non-human animal carrying a recombinant DNA expression vector encoding a heterologous cholinesterase (ChE) enzyme selected from the group consisting of:

- (a) wild-type human AChE;
- (b) wild-type human BChE;
- (c) variants of the AChE and BChE of (a) and (b);
- (d) variants of the AChE and BChE of (a) and (b); said

synthetic variants selected from recombinantly-produced point-mutated and deletion of one or more residues, mutations; and

(e) wild-type insect ChEs, said transgenic animal being capable of expressing amounts of said ChE enzyme for studying control of production on biochemical properties of cholinesterases.

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12. (Amended) A transgenic non-human animal according to claim 11 selected from *Xenopus* and mice.

13. (Amended) A transgenic non-human animal according to claim 12, which carrying a recombinant expression vector encoding a human AChE or biologically active derivatives thereof selected from:

(a) a DNA sequence which has all or part of the nucleotide sequence (SEQ ID NO: 1) as depicted in Figure 1A, and which encodes an amino acid sequence similar or identical to all or part of the sequence of nucleic acid residues (SEQ ID NO: 20) depicted in Fig. 1B;

(b) a DNA sequence which has all or part of the nucleotide

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sequences (SEQ ID NO: 3) as depicted in Fig. 1C, and which encodes an amino acid sequence similar or identical to all or part of the sequence of amino acid residues (SEQ ID NO: 4) also depicted in Fig. 1C; and

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(c) A DNA sequence which has all or part of the nucleotide sequence (SEQ ID NO:5) as depicted in Fig. 1D, and which encodes an amino acid sequence similar or identical to all or part of the sequence of amino acid residues (SEQ ID NO: 6) also depicted in Fig. 1D.

14. (Amended) A transgenic non-human animal according to claim 13, in which said recombinant expression vector contains a promoter controlling the transcription of said sequence encoding AChE selected from the group of eukaryotic host cell compatible promoters.

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17. (Amended) A transgenic non-human animal assay system for studying secretion, control of production and biochemical properties of cholinesterases in mammalian milk, comprising a transgenic mammal according to claim 11.

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18. (Amended) A transgenic non-human mammal according to claim 11, being capable of expressing amounts of ChE enzyme in its mammary glands.

19. (Amended) The transgenic non-human animal according to claim 18, wherein said ChE enzyme is selected from the group consisting essentially of wild-type human AChE, variants of AChE, and variants of the AChE.

20. (Amended) The transgenic non-human animal according to claim 19, wherein said variants are selected from the group consisting

essentially of recombinantly-produced point mutation and deletion of one or more residues and mutations.

23. (Amended) A transgenic female non-human mammal wherein said ChE enzyme is selected from the group consisting of:

- (i) wild-type human AChE;
- (ii) variants of AChE; and
- (iii) variants of the AChE, said synthetic variants selected from recombinantly produced point mutated and deletion of one or more residues and mutations.

24. (Amended) A method of producing recombinant human AChE comprising the steps of:

- (i) providing a lactating transgenic non-human animal according to claims 23 or 24;
- (ii) obtaining milk from the animal; and
- (iii) isolating from the milk obtained in step (ii) human AChE.

25. The transgenic non-human animal according to claim 11 which has all or part of the nucleotide sequence (SEQ ID NO: 28).